

REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 13, 14, 16, 17, 19 and 22-24 are pending in the application.

The applicant's counsel thanks Examiner Guarriello for the courtesy extended during the interview of December 13, 1994. It is sincerely believed that the interview materially advanced the prosecution of the subject application. The above amendments and following remarks are believed to be commensurate in scope with the discussions during the interview.

Claim 13 has been amended to remove the redundant language "(normal portion)", as suggested by the Examiner during the interview. Basis for the amendment of dependent claims 22-25 can be found in the present specification including at page 7, lines, 22-27, and Table 1 on page 13. No new matter has been added.

The specification has been amended to correct minor typographical errors. In Tables 3 and 4, Examples 13 and 14 have been amended to be Comparative Examples 4 and 8 respectively, to be in conformity with Fig. 1 and the specification at page 10, lines 22 and 28. One of ordinary skill in the art reading and comprehending the experimental results in Tables 3 and 4 and Fig. 1, would immediately recognize that C4 in Fig. 1 is the experimental results shown at Example 13 in Table 3 and that C8

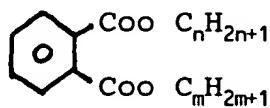
is the experimental results shown at Example 14 in Table 4.

Table 5 shows the correct Examples 13 and 14.

Basis for the language "10⁷ dyne/cm²" can be found in the present specification including at page 20, line 1 and Table 6, row 8. No new matter has been added.

The rejection of claims 13, 14, 16, 17, 19 and 22-24 under 35 U.S.C. § 103 over Takimoto '333 in view of JP '345 is respectfully traversed. As will become clear from the following discussion, one of ordinary skill in the art would not be motivated to combine Takimoto with JP '345, and even if these references are combined, the claimed invention would not be taught or suggested by such a theoretical combination.

The claimed invention relates to a steering wheel pad made of a soft vinyl chloride resin composition. The soft vinyl chloride resin composition comprises 100 parts by weight of a vinyl chloride resin, 20 to 150 parts by weight of a thermoplastic aliphatic polyurethane, and 60 to 150 parts by weight of an alkyl phthalic ester having the following specific formula:



wherein m and n are 7 to 9. The alkyl phthalic ester has a linear chain ratio of an ester group of 80% or more.

The claimed steering wheel pad or cover must have good pliability characteristics at both low and high temperatures. Problems result with conventional steering wheel pads if the steering wheel pad becomes brittle at low atmospheric temperatures because the pad may break into pieces when an air bag inflates causing injury to a passenger. Similarly, in conventional pads, if the steering wheel pad becomes soft at high atmospheric temperatures, the pad may split open at an incorrect place when the air bag is inflated causing problems or pieces of the pad may rip off when the air bag is inflated causing injury to a passenger. The steering wheel pad must have sufficient low and high atmospheric temperature resistance so that when the air bag inflates the pad opens properly and the pad does not lose integrity.

Neither of the cited references address these problems. Takimoto discloses steering wheel materials made of polyvinyl chloride resin, phthalic acid ester and acrylonitrile butadiene rubber (NBR). The object of Takimoto is to provide a steering wheel having a strong adhesion between the resin composition and a coating film, a soft touch to the hands of the drivers, and a lower manufacturing cost. Takimoto does not teach one how to obtain low or high temperature performance characteristics, but, rather how to prepare a steering wheel that resists wear from constant touching and stays soft to the touch.

JP '345 discloses a composition for hoses, shoe soles and gaskets consisting of a vinyl chloride, plasticizer of ethyl hexyl phthalate, filler and a thermoplastic polyurethane. The object of JP '345 is to obtain vinyl chloride resin composition having high impact resilience, high mechanical intensity and good workability, especially to improve the impact resilience, a characteristic very desirable for a shoe sole but not this invention. In fact, JP '345 has no disclosure regarding how to obtain well balanced low/high temperature characteristics for a pad or cover on an air bag that will only work once.

One of ordinary skill in the art looking to solve the problems associated with low and high temperature characteristics would not be motivated to look to either of Takimoto or JP '345, nor from one to the other, because neither addresses the problems of low/high temperatures nor solutions thereto.

Applicants respectfully submit that the Examiner is applying hindsight as the "glue" to link the primary and secondary references together. It is well settled that in order for a combination of references to render an invention obvious, it must be obvious that their teachings can be combined. In re Avery, 186 USPQ 161 (C.C.P.A. 1975). Also, teachings of references can be combined only if there is some motivation, suggestion or incentive to do so. When the prior art fails to provide any such suggestion, the combination is improper and obviousness will not be established. ACS Hosp. Systems v.

Montefiore Hosp., 221 USPQ 929, 933 (Fed. Cir. 1984). See also In re Fritch, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992) (regarding hindsight, "it is impermissible to use the claimed invention as an instruction manual or 'template' to piece together prior art."). The references, viewed by themselves and not in retrospect, must suggest doing what the Applicant has done. In re Shaffer, 108 USPQ 326 (C.C.P.A. 1956); In re Skoll, 187 USPQ 481 (C.C.P.A. 1975). In determining obviousness, one must look at the prior art from the vantage point in time prior to when the invention was made; hindsight obviousness after the invention has been made is not the test. In re Carroll, 202 USPQ 175 (C.C.P.A. 1979). The mere fact that it is possible for two isolated disclosures to be combined does not render the result of that combination obvious absent a logical reason of record which justifies the combination In re Regel et al., 188 USPQ 136 (C.C.P.A. 1975). Nor can one merely pick and choose, in a piecemeal fashion, some material to the exclusion of other. In re Wesslau, 147 USPQ 391, 393 (C.C.P.A. 1965). Thus, Applicants respectfully submit that the Examiner has impermissably relied on hindsight gleaned from the present specification as a motivation to combine the cited references.

Furthermore, in Takimoto, it is clear that the object of good feel or touch is achieved not only by phthalic acid ester, but also by the combination of NBR and phthalic acid ester. Thus, to replace the NBR with the polyethylene of JP '345

would destroy the purpose of Takimoto. See Ex parte Hartman, 186 U.S.P.Q. (BNA) 366, 367 (P.T.O.B.A. 1974) (reversing rejection when modification would destroy basis for invention in one of two references).

Moreover, one of ordinary skill in the art would not be motivated to combine Takimoto with JP '345 because Takimoto teaches away from the claimed invention. Takimoto teaches that the claimed invention does not work. See Table 2 at column 3 of Takimoto, in which comparative example 6, (straight chain phthalate having from 7 to 9 carbon atoms) which is the claimed linear chain having from 7 to 9 carbon atoms, had poor initial adhesion and poor adhesion after UV irradiation. Thus, one of ordinary skill in the art would not take a comparative example of Takimoto, which does not work, and use it in the composition of JP '345.

For these reasons alone, the Section 103 rejection should be withdrawn. However, even if Takimoto was combined with JP '345, the claimed invention would not be taught or suggested by such a theoretical combination.

The criticality of the claimed components are clearly disclosed in the present specification. The claimed steering wheel pad surprisingly exhibits low temperature flexibility, heat resistance, thermal aging resistance, and resistance to light in a usable temperature range from -40°C to 100°C.

Figure 1 illustrates the relationship between the $\tan \delta$ peak temperature and the tensional modulus. The low temperature characteristic expressed in terms of the $\tan \delta$ peak temperature and the tensional modulus at 100°C are known by one of ordinary skill in the art to be characteristics which are contrary to each other. It has been generally accepted that where importance is placed on the heat resistance in soft polyvinyl chloride compositions, higher phthalic acid esters such as DIDP are appropriate. In this case, the $\tan \delta$ peak temperature is shifted to a higher temperature side, such as comparative example C9 in Figure 1.

If the $\tan \delta$ peak temperature is less than -10°C, the polymer will have good low temperature qualities, such a flexibility at low temperatures. When importance is placed on the cold resistance, it is accepted that use of aliphatic acid esters such as adipates, cebacates and the like is favorable. In this case, the tensional modulus at 100°C is significantly lowered with a loss of practical strength and also with a considerable loss of durability, and bleeding or a large volatility of the plasticizer occurs.

When the combination of PVC/TPU/normal phthalic acid ester according to the claimed invention is used, surprisingly the low temperature characteristic/high temperature characteristics are well balanced, which is not attained by the

cited prior art. This effect has been found for the first time by the applicants and is illustrated in Figure 1.

Further, because the normal phthalic acid ester present in the improved composition of the claimed invention has 7 to 9 carbon atoms the composition is resistant to light and plasticizer bleeding is suppressed. Please see page 12, lines 13-15 of the present specification. The reference contains no instruction on either the problem nor this solution.

The applicants submit that comparative examples 9 and 10, in Table 4 on page 16 of the present specification, represent the primary reference, Takimoto. Comparative example 9 used DIDP, and Comparative example 10 used DNDP, which are disclosed at column 3, lines 1-7 of Takimoto. Comparative example 9 (Takimoto) exhibited a poor Tan δ peak of only -6° C. Comparative example 10 (Takimoto) exhibited bleeding.

In contrast, the claimed invention exhibits a substantially improved Tan δ peak of -17° C to -43°C, and no bleeding. See Tables 1 and 2 on pages 13 and 14 of the present specification.

Comparative example C1, in Table 3, on page 15 of the present specification, represents JP '345. See page 8, Table 1 of the translation of JP '345, which was submitted with response dated May 27, 1994. JP '345 discloses using DOP as the plasticizer and comparative example 1 used DOP as the plasticizer. Comparative example 1 exhibited a poor Tan δ peak

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of only -5° C and a large volatility weight loss at 80° C which is undesirable.

The aliphatic thermoplastic polyurethane exhibits increased resistance to color change due to exposure to light and exhibits excellent resistance to thermal aging. See page 5, lines 33-35 and page 7, lines 29-31 of the present specification.

In view of the notable lack of teachings in these references, the lack of any direction that would motivate their combination, the many differences between the claimed invention and the theoretical combination of the cited prior art, as well as the many unexpected advantages of the claimed invention, withdrawal of the § 103 rejection is respectfully requested.

In view of the above, reconsideration and allowance of the subject application are respectfully requested.

Respectfully submitted,

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